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ABSTRACT

This paper summarizes major findings from a doctoral study of the economic rationale for closing rural and metropolitan schools in South Australia. It is evident that some communities in South Australia have had their local school closed and some have not. Some receive greater levels of funding than others. This thesis research examines the reasons for such differences in policy, and considers whether they are consistent with a sound economic rationale. Four rural and four urban schools were selected as case studies, and the economic cost or benefit to the community from closing each school was analyzed. The net tangible cost or benefit of school closing was then compared to the additional student travel time resulting from closure, yielding an implicit value of students' travel time if the schools were closed. Results indicate that the savings that accrue from school closure are greater in metropolitan areas than rural areas. The implicit minimum value of students' time that would make closure a viable option in country areas is $0.76 per hour, compared to $30.12 in metropolitan areas. In addition, a district funding model was developed that provides an alternative resource allocation methodology based on minimum school size, maximum school size, and maximum student travel time. This funding model is likely to achieve significantly greater savings than are possible from school closure. (SV)

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# *A Fair Go – Cutting the Cake and Closing Schools*

Doctor of Philosophy Exit Seminar

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## Introduction

This paper summarises the major findings from a doctoral study of the economic rationale for closing country and metropolitan schools. The study originally focussed on the economic rationale for school closure and the impact of resource allocation policies on this rationale. As the study progressed, it became evident that policies on school closure are a subset of broader resource allocation policies. The specific aims of this research were to:

- examine the economic rationale for providing schools to country and metropolitan communities;
- investigate current resource allocation mechanisms within the State Government education sector;
- investigate within-school re-allocations of resources from a detailed examination of four country and four metropolitan school case-studies;
- examine the total cost of country and metropolitan schooling in South Australia from a system perspective; and
- investigate whether the South Australian Government's policies on resource allocation to government schools were consistent with a sound economic rationale.

It is evident that some communities in South Australia have had their local school closed and others not. Some receive greater levels of funding than others. This thesis research examines the reasons for these differences in policy, and considers whether they are consistent with a sound economic rationale. The thesis addresses the following research focus questions:

- What was the policy under which the State Government allocated resources to South Australian Government schools?
- Are current policies on resource allocation consistent with an economic rationale?
- Does the Delphi technique for establishing a consensus position, have a legitimate role as a tool for resource allocation?
- What was the policy for resource allocation under which schools allocated resources to students?
- What differences in resource allocation policies existed between metropolitan and country schools at the State and School levels?
- Did schools and the Department allocate resources according to a consistent rationale?
- What is the economic rationale for school closure?
- Are there differences in the economic rationale for closing country and metropolitan schools?
- Is the economic rationale for school closure dependent on existing recurrent resource allocation policies?

This paper only examines the last three research questions in detail.

A major contribution of this study is the development of a methodology to provide an implicit valuation of students' time as a key part of the cost effectiveness studies used to justify school closure decisions. This extends the concept referred to sparingly in the literature as "*contingency calculations*" (Mishan, 1969; 1990) and provides a useful policy instrument in the education sector.

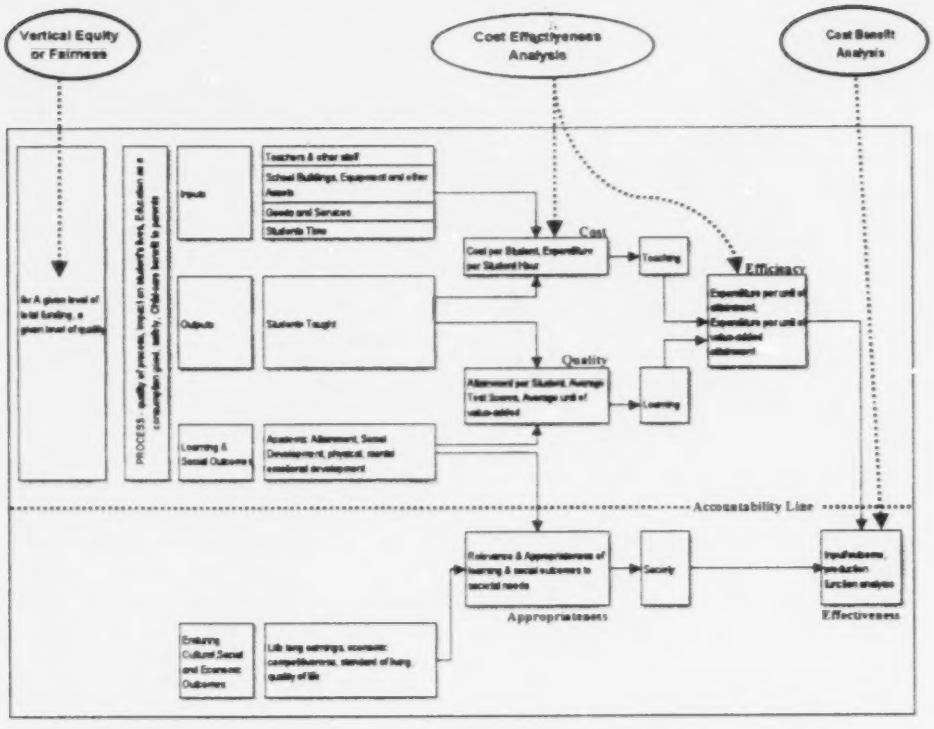
The study clearly demonstrates the link between resource allocation and school closure policies. It also provides a methodology, which enables policy-makers to make a clear choice between school closure and resource allocation as alternative means of realising the cost-savings objectives of Government. The study suggests that the South Australian Government school system will achieve greater cost-efficiencies and impose less cost on communities by closing larger metropolitan schools rather than small rural schools. It also shows that the benefits to the community from closing metropolitan schools are much greater than closing those in the country.

The significance of this research is its potential to improve the equitable allocation of resources to all communities and of reducing the number of school closures in small (and usually) rural communities. This has far reaching consequences for the children, families and economies of those communities as well as for the general population, who benefit from the existence of rural communities in many ways. It should be noted that some of this potential has already been realised with major changes to resource allocation to Government Schools in 2000 being directly attributable to this thesis work.

## Conceptual Framework

An extensive literature review was undertaken to ascertain the economic theoretical basis for educational investment. Human Capital Theory is the major economic theory considered, which is closely related to Educational Production Function Theory. Cost Benefit Analysis compares the costs and benefits of alternative forms of educational production. These three theoretical constructs are briefly discussed, but are found to provide little practical assistance in terms of our understandings about resource allocation to Australian schools. Cost Effectiveness Analysis is used as the major theoretical approach to assessing the level of educational investment in communities. The other theoretical construct is the concept of 'a fair go' or vertical equity. This is the idea that all citizens are entitled to receive the same quality of education. The conceptual framework for this study is shown in Figure 1.

*Figure 1: Conceptual Framework*




The conceptual framework shown in Figure 1 provides a unifying and overarching framework for a range of disparate research. For example the links between teaching and learning encompasses a large range of research issues including class size, school size, modes of delivery and teaching practice. The concept of inputs, outputs and outcomes are key parts of major budget reforms in all Australian States and the Federal Government. The series of linkages from inputs to societal needs is consistent with educational production function theory. The concepts of vertical equity, cost benefit and cost effectiveness analysis are clearly linked to the production function and the accountability line.

As indicated in Figure 1, the thesis research does not look below the accountability line. We are interested in vertical equity and cost effectiveness, which can be thought of as either cost per student or cost per student level of attainment. The costs we are looking at are broader than those considered in existing research, and specifically include the cost of students' time.

It is extremely problematic to consider cost effectiveness from an attainment perspective, because many social as well as academic learning outcomes are not currently measured, and are definitely not available as value-added measures. It is also likely that any analysis that simply assumes test scores in literacy and numeracy will be useful indicators of whether or not the education production is 'on-track' to an eventual long-term outcome of economic prosperity is seriously flawed. This is because of the

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large contribution that social outcomes of schooling make to the long-term economic outcome. Whilst there are emerging methodologies that start to take into account value-added and more holistic outcome measures, these are not sufficiently developed to use, nor is data currently available in South Australia. This is why the research in this thesis considers vertical equity and cost-effectiveness only from a cost-minimisation perspective using indicators such as expenditure per student. When better cost-per-student-attainment measures become available, the methodology could be readily adapted. The broader issue of the effectiveness of the educational investment in achieving economic prosperity is not considered, not only because of its problematic nature, but also because we are only examining issues above the accountability line. The question is 'given that the Government wishes to continue its investment in education, how should resources be allocated?' and not 'whether the Government should invest in education'.

This paper examines the inter-related nature of recurrent resource allocation and cost effectiveness analysis, specifically in relation to the school closure issue. That is, if the cost effectiveness analysis indicated that the community would receive a net benefit from a school closure, is this dependent upon the recurrent resource allocation policies currently in place? The question then remains of whether alternative resource allocation policies can be established that meet the fairness and cost-effectiveness criteria – but result in different outcomes in terms of the school closure analysis. This is the 'chicken and egg' question as to whether the recurrent resource allocation policy determines the outcome of a cost-effectiveness study of school closure. An attempt is made to resolve the apparently conflicting objectives of ensuring fair resource allocation as well as the least-cost method of providing schools to communities. Whether a community is provided with a school or not is a subset of a broader resource allocation methodology, which incorporates both capital and recurrent resources. This complex issue is only hinted at in the literature and is considered in detail in this study.

## Methodology

A quantitative research methodology is used. The rationale for such an approach is that the economic arguments for school closure and resource allocation are usually expressed in a quantitative economic context. The arguments against a school closure are usually qualitative. It is hoped that this research will provide a better rationale for allocating resources to rural communities as a matter of right rather than as a special consideration or by political discretion. It is hoped that a means of funding rural schools can be developed which does not equate rural as a deficit characteristic. This is why the research component of this thesis examines an entire public school system as well as metropolitan and country school case studies. The research methodology included the following components:

1. Financial Analysis and Regression Analysis of State Funding to Government Schools.
2. Observation, Interview and participation in the Delphi Process.
3. Case Studies of Resource Allocation within 8 Schools.
4. Cost benefit analysis and modelling of school closure.
5. Modelling of District Funding.

This paper only discusses the fourth and fifth components of the methodology.

**Cost Benefit Analysis of School Closures**

A structured sampling process was developed to portray the secondary schooling profile in typical country and metropolitan areas of South Australia, which encompassed a range of school sizes and geographic locations, yet excluded differences due to different SES profiles of students. This resulted in four country and four metropolitan schools being selected. Each of the case-study schools was considered for possible school closure. An economic cost-benefit analysis was undertaken for each to establish what the cost or benefit to the community would be from closing the school. This analysis considered the benefits to society from closing the school such as the fixed costs that are avoided if one of two schools is closed.

The fixed operating expenses included the resource centre, grounds and administrative fixed costs, which obtained from the detailed cost accounting for each of the case study schools. However, not all of these costs are likely to be avoided if each school were saved. For example, capital expenditures are generally not recovered when schools are closed and sold. Also, not all of the administrative salaries, goods and services, and minor assets are site related and thus would be not be avoided if the school were closed and the students educated at a nearby school.

A one-off benefit from selling the land was also quantified from the valuations of the South Australian Valuer-General. The sale price for each property assumed that the value of the capital improvements was not realised in the sale. It should be noted that if the school were not sold, the community would have access to this land or access to the proceeds from selling the land in 15 years time – at the end of the project life. By showing the future land sale proceeds as a cost of closure and the immediate sale proceeds as a benefit the net affect is to only account for the opportunity cost of using the land.

The costs of closing the school included the additional bus transportation costs at the country schools as well as some capital upgrade at the school the students were relocated to. The sale of the land also required some costs including selling agent expenses, soil remediation and the net cost of demolition of buildings.

The discounted cash-flow technique of calculating the net present value of the school closure was undertaken using a project life of 15 years and a real (net of inflation) discount rate of 5%. This is consistent with the approach used by the Department of Education Training and Employment in South Australia and with the State and Federal Government publications relating to cost benefit analysis (Department of Finance, 1991; South Australian Department of Treasury and Finance, 1995 & 1997).

For each of the case study schools, the net present value was established in current-day prices. This figure represented the net tangible cost or benefit to the South Australian community if each of these schools were closed. This needed to be compared to the additional student travel time cost that results from closing the school. There are other intangible costs and benefits, which have not been examined. These include the potential negative and positive feelings in the community, the potential broadening

of curriculum offerings for students and the potential for the closure to threaten the town's survival. To compare the net present value which is the capitalised value of the 15-year cash flow to the on-going student travel time cost it was necessary to convert the net present value to an annualised figure. This amount is divided by the additional student travel hours that result from the closure decision. The resulting figure is a dollar-cost per student-hour which represents the implicit minimum valuation that the Government must place on students' time if it closes the school. It allows the decision-maker to close the school if he or she believes that student travel time is worth less than a stated dollar amount.

**Modelling of District Funding**

Each of the case study schools was considered as part of a notional school district, which included the nearest alternative schools. The recurrent resource allocation policy for the district was then examined to determine whether by changing the policy to include consideration of the number of schools in each district, we would make different decisions in relation to the school closure issue. This analysis included using maps to establish the road distance and time between schools in each of the notional districts. Three policies of desirable minimum school size, maximum school size and maximum student travel time per journey were developed to determine the number of schools that would be allocated to each district if we were to have consistent policies for country and metropolitan districts.

The basis for selecting the districts was to use the case study schools and find from a map the nearest alternative school. Where there was more than one alternative school nearby, these were included in the notional district. The total enrolment in each district was then used along with the three policies (minimum size, maximum size and maximum travel time) to determine the number of schools based upon the maximum school-size and the maximum student travel-time criteria. This determined the number of schools eligible for closure in each district and for country and metropolitan districts to be compared. The final part of this analysis was to determine the recurrent resource allocation rationale based upon these policy parameters.

## Outcomes

The outcomes of the cost effectiveness analysis and the modelling of district funding are the only thesis outcomes discussed in this paper.

### Cost Effectiveness Analysis

The outcomes of the cost effectiveness analysis when we only consider the tangible costs and benefits for each school are shown in Table 2. The net present value figure can be interpreted as the benefit to the South Australian Community if each school were closed today.

*Table 2. Implicit Value of Students' time if Schools are Closed*

| School (country schools are shaded) | NPV | NPV per Annum using PMT formula | Additional travel Hours PA | Cost per Student Hour | Rankings |
|---|---|---|---|---|---|
| F1 Metro High School | $5,054,118 | $486,925 | 17,197 | $28.32 | 3 |
| M1 Metro High School | $5,902,036 | $568,616 | 10,883 | $52.25 | 1 |
| R3 High School | $6,562,824 | $632,277 | 30,178 | $20.95 | 4 |
| R2 Metro High School | $7,518,743 | $724,373 | 24,060 | $30.11 | 2 |
| H1 Area School | $214,654 | $20,680 | 36,400 | $0.57 | 7 |
| K1 Area School | $530,403 | $51,100 | 64,000 | $0.80 | 6 |
| K2 Area School | -$1,9[illegible]738 | -$183,218 | 187,200 | -$0.98 | 8 |
| R1 High School | $3,217,569 | $309,988 | 160,000 | $1.94 | 5 |
| Average Metro Schools | $6,434,133 | $619,879 | 20,579 | $30.12 | |
| Average Country Schools | $878,585 | $84,645 | 111,900 | $0.76 | |

For example closing the F1 Metro High school will yield a tangible net benefit to the South Australian community of $5.05m whereas closing the K2 Area School will yield a net cost to the community of $1.9m.

The additional hours pa represent the extra student time to get to the nearest alternative school each year. The nearest alternative country school was 52 minutes away compared to only a 4 minute figure for metropolitan schools.

The annualised value of the net present value is simply a calculation of the annual income stream for each of 15 years that a one off payment equal to the net present value would achieve. This annual amount is divided by the annual number of additional student travel hours at each school to calculate the cost per student hour amounts.

Estimating the additional student hours at all schools is somewhat problematic because students may not be travelling to their nearest school prior to the closure. This is more likely to be the case in metropolitan schools where there are more alternative schools available. This means that the additional time in metropolitan schools may be less than stated in the Table 2. In country schools the assumption is that a bus would travel from the existing school to the new school. Again this may overstate the

travel for some students living halfway between the schools. This is likely to only be an issue at the R1 High School as the other country schools have very few people living between the towns.

The cost per student hour amount shown in Table 2 represents the implicit minimum value per student hour that would justify a decision to close one of these schools. For example if the H1 school were to be closed the policy maker would have to value students' time at less than $0.57 per hour. At the M1 Metropolitan High School the figure is $52.25 per hour. On this basis it would be much more reasonable to close the M1 Metropolitan High school. The striking differences between country and metropolitan schools is shown in the last two rows of Table 2. On average, metropolitan school students have an implicit valuation of at least $30.12 per hour compared to at least $0.76 per hour for country students. The K2 area school figure is negative because the net present value is negative – this reflects that the benefit of closing the school is offset by the increase in the tangible costs of bussing.

The rankings in Table 2 are the order in which schools should be closed – based on the implicit valuations of students' time. For example closing the M1 High School results in a tangible benefit of $5.9m and increase student travel time by 10,883 student hours pa. The implicit minimum value of student's time at this school is $52.25, which is the highest amount of any of the case study schools. The vertical equity or fair go criteria implies that students at all schools be valued at the same amount. This means that if we are prepared to close any school where the valuation is less than $52.25 it is difficult to defend not closing M1 High School.

This analysis assumes that the only intangible cost or benefit is student travel time. There are other intangible benefits and costs attributed to school closure, which are discussed in the thesis.

**The Modelling Of District Funding**

The analysis relating to school closure was based upon the actual policies on resource allocation to country and metropolitan schools. A separate analysis was undertaken to determine whether the policy advice on school closure would change if we had a different policy on recurrent resource allocation – specifically if we had a resource allocation formula that included an element of per-district funding as well as per-school funding.

Each of the case study schools was considered as part of a notional school district, which included the nearest alternative schools. Figure 2 shows the notional district for the metropolitan M1 High school and Figure 3 the country K1 Area school.

*Figure 2: Notional M1 High School District*

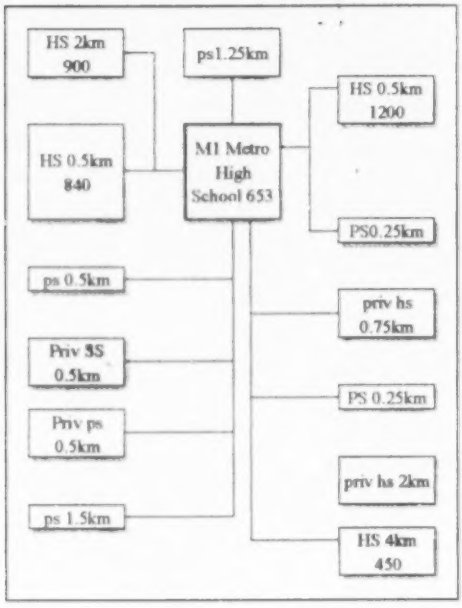
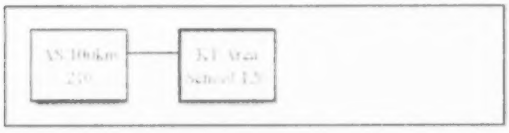



*Figure 3 Notional Districts for the K1 Area School*



A model of funding was developed where resources were allocated to districts based upon the implicit resource allocation policy estimated using multiple regression analysis. (This was a major component of the thesis research). The total funding provided to each district (to Government schools with a secondary component) was $3,089 per year R-2 student, $2,645 per 3-7 student $3,320 per 8-10 student and $7,236 per 11-12 student. High Schools were provided with base funding of $358,775 and Area schools $643,355. To simplify the analysis additional allocations for students with disabilities and from particular disadvantaged groups were excluded because these funds would be provided wherever the student was educated. These dollar amounts were applied to the total enrolment in each district. These amounts were compared to an alternative allocation of resources to districts based on a consistent policy framework with three major criteria as follows:

- No student should travel 20 minutes or more to school
- No school should have more than 1500 students
- All schools should be funded to cater for 300 students

Table 3 shows the number of schools that each district would notionally be entitled to under these criteria.

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*Table 3. The number of schools each district would notionally be entitled to*

| District | Enrolment in School being considered for closure | Enrolment in Alternative Schools in District | | | | Total Enrolment in District | Number of Schools in District | Number of Schools based on Maximum Criterion | Number of Schools Based on Maximum and Travel Time Criteria | Schools Eligible for Closure |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | | | | | |
| F1 Metro High School | 469 | 770 | 298 | | | 1537 | 3 | 1 | 1 | 2 |
| M1 Metro High School | 653 | 1200 | 900 | 840 | 450 | 4043 | 5 | 3 | 3 | 2 |
| R3 High School | 970 | 1040 | 630 | 1400 | 950 | 4990 | 5 | 4 | 4 | 1 |
| R2 Metro High School | 802 | 510 | 570 | 500 | | 2382 | 4 | 2 | 2 | 1 |
| H1 Area School | 91 | 260 | | | | 351 | 2 | 1 | 2 | 0 |
| K1 Area School | 120 | 210 | | | | 330 | 2 | 1 | 2 | 0 |
| K2 Area School | 468 | 450 | 420 | | | 1338 | 3 | 1 | 3 | 0 |
| R1 High School | 600 | 360 | 700 | 420 | 450 | 2530 | 5 | 2 | 5 | 0 |
| Metropolitan School Districts | | | | | | | 17 | 10 | 10 | 6 |
| Country School Districts | | | | | | | 12 | 5 | 12 | 0 |

Table 3 shows that there are actually 12 schools in country districts and according to the criteria for district funding there are also 12 schools. In metropolitan districts there are actually 17 schools compared to only 10 if the same criteria were applied. The last column of Table 3 shows the schools that would be eligible for closure if the criteria were applied consistently to metropolitan and country schools. It is of interest that no country schools would be eligible for closure, using these particular criteria, however that is not the purpose of the analysis. The purpose is to determine how many lots of per-school funding would be paid to each district if a district funding model was adopted, and this is shown in Table 4.

*Table 4. Potential Savings from Allocating Resources on a District Entitlement Basis*

| District | Total Allocation based on Actual Schools | Total Allocation based on Notional Schools | Potential Annual Savings | Net Present Value | NPV from school Closure |
|---|---|---|---|---|---|
| F1 Metro High School | $7,904,937 | $7,187,387 | -$717,550 | $7,447,924 | $5,054,118 |
| M1 Metro High School | $20,475,823 | $19,758,273 | -$717,550 | $7,447,924 | $5,902,036 |
| R3 High School | $26,110,439 | $25,751,664 | -$358,775 | $3,723,962 | $6,562,824 |
| R2 Metro High School | $12,801,168 | $12,083,618 | -$717,550 | $7,447,924 | $7,518,743 |
| H1 Area School | $2,524,619 | $2,524,619 | $0 | $0 | $214,654 |
| K1 Area School | $2,455,603 | $2,455,603 | $0 | $0 | $530,403 |
| K2 Area School | $7,242,989 | $7,242,989 | $0 | $0 | -$1,901,738 |
| R1 High School | $13,847,103 | $13,847,103 | $0 | $0 | $3,217,569 |
| Total | | | -$2,511,425 | $26,067,733 | $27,098,609 |

The allocation to districts based on the actual number of schools is shown in the second column of Table 4. The third column shows the allocation if a district funding model was introduced.

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The potential savings from the district method of allocating resources to districts is a recurrent saving each year – potentially forever. The net present value column calculates the capitalised value of this annual saving based on it occurring each year for 15 years. This allows the savings from a change in resource allocation policy to be compared to the potential savings that could result from school closure (which was also calculated on a 15 year time period).

This analysis shows that the savings likely from a change in resource allocation policy are similar in magnitude to those that accrue from school closure. The difference is that the former does not reduce funding to rural schools – it only affects metropolitan schools. It is important to note that the change to resource allocation policy using a notional number of secondary schools in each district does not automatically prescribe any school closures in those districts. It could remain a district decision as to whether the reduction in the base allocation would be managed by the sharing of resources across the district, managing the administration of schools across the district from one location or by closing sites.

## Summary

It is clear that the savings that accrue from school closure are greater in metropolitan areas. The implicit minimum value of students' time that would make closure a viable option in country areas is $0.76 compared to $30.12 in metropolitan areas. This indicates that if the time of all students were valued equally, it is likely that only metropolitan schools would be closed. An implication of this research is that school closures should only occur where the implicit valuation of students' time required to justify closing the school is more than a system-wide constant amount. It is feasible that all schools in a system could be ranked for closure according to this criteria and a strategic plan to manage this process could be put in place. This would replace the current opportunistic or ad-hoc approach and would most likely result in fewer country school closures.

The district funding model provides an alternative resource allocation methodology, which is based on three important criteria, minimum school size, maximum school size and maximum time a student should need to travel to attend school. The district funding model is likely to achieve significantly greater savings than are possible from school closure. All of the case study schools would have to be closed to achieve the same quantum of tangible savings that occur from a district funding model. If the district model were adopted it is likely that school closure would become a district decision rather than a centrally-imposed decision.

This paper has focussed on two major components of the PhD thesis, the economic rationale for school closure and the concept of district funding. Briefly mentioned was the implicit formula for allocating resources to all schools, which was determined by regression analysis. This part of the research has already made the transition from theory to practice and from the beginning

of 2000 the Department of Education Training and Employment has replaced the numerous resource allocation policies previously in place with a simple formula based predominantly on the number of students. This change in practice followed from a major review of school management in 1998 by Professor Ian Cox (Cox, 1998). Volume two of Professor Cox's report included an earlier draft of some of the material in this thesis and was acknowledged as an extract from an unpublished PhD thesis by this author. The concept of district-based funding continues to be explored with some partial implementation anticipated for this concept in 2001 in the far north Anangu (Aboriginal) schools.

Although not discussed in this paper, the use of the Delphi technique was considered as an alternative means of establishing key resource allocation policies. This concept has been adopted in South Australia in 1999 to establish the policy for allocating funds to geographically isolated students. In 2000 it was used to establish the policy for allocating all funds to schools (for the 2001 school year).

This thesis provides a unifying conceptual framework which includes the economic concept of cost-effectiveness analysis and as well as the vertical equity concept of a fair go. The thesis also provides some clarity as to the economic basis for school closure and its direct link to resource allocation policy, perhaps for the first time.

The next steps in developing this research further will be to use the criteria for district-based funding as the basis for both capital and recurrent resource allocation policies. The use of the Delphi technique as an alternative means of establishing key resource allocation policies should continue to develop within South Australia.

**Qualification**

This analysis is for illustrative purposes only. The discussion relating to the school closure and district level funding approaches are both simplified to some degree to illustrate the concepts. A more detailed analysis would require current market valuations of property, quantity surveyor and engineering advice on facility upgrades at the remaining schools and detailed sensitivity analysis of the discount rates, anticipated future enrolment patterns and perhaps more accurate cash flowing of future maintenance projections in place of a constant 2% factor. The resource allocation modelling is based upon three completely arbitrary policy criteria. Different criteria could result in different comparisons being made. The basis for these arbitrary figures being used is more than a guess – it comes from a draft policy paper within the Department of Education Training and Employment on these specific criteria.

## References


Cox, I. (1998) Community partnerships in education: a report on local school management South Australia. (Volumes 1 & 2) prepared for the Hon. Malcolm R. Buckby, Minister for education, Children's Services and Training, Ministerial Working Party, Adelaide.

Department of Finance (1991) *Handbook of cost-benefit analysis*. Canberra, Australian Government Publishing Service.

Mishan, E.J. (1990) *Cost benefit analysis an informal introduction*. Fourth Edition. London, Routledge.

Mishan, E.J. (1969) *Welfare economics: an assessment*. Amsterdam, North Holland Publishing Company.

South Australian Department of Treasury and Finance (1995) Contracting Out financial guidelines.

South Australian Department of Treasury and Finance (1997) Project evaluation guidelines [Online]. Available: http://www.treasury.sa.gov.au/initiatives/glcontents.html [2000, September 20].